



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/525,839

02/25/2005

Kazuyuki Oku

OKU7

2202

1444 7590 03/26/2008  
BROWDY AND NEIMARK, P.L.L.C.  
624 NINTH STREET, NW  
SUITE 300  
WASHINGTON, DC 20001-5303

EXAMINER

HENRY, MICHAEL C

ART UNIT

PAPER NUMBER

1623

MAIL DATE

DELIVERY MODE

03/26/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/525,839	<b>Applicant(s)</b> OKU ET AL.	
	<b>Examiner</b> MICHAEL C. HENRY	<b>Art Unit</b> 1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 12-14 and 17-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-22 is/are allowed.
- 6) ☒ Claim(s) 12-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/06/07 &amp; 11/30/07</u> .                                 | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

The following office action is a responsive to the Amendment filed, 12/13/07.

The amendment filed 12/13/07 affects the application, 10/525,839 as follows:

1. Claims 12, 13, 17 have been amended. Claims 1-11, 15-16 have been canceled.

New claims 18-22 have been added. Upon further consideration it was determined that the indication of allowable subject matter with respect to claims 12-15 in the prior office action mailed 06/14/ was inappropriate. Consequently, this allowable subject matter is withdrawn and a new ground (s) of rejection is made herein.

2. The responsive to applicants' arguments is contained herein below.

3. Claims 12-14 and 17-22 are pending in the application

### ***Claim Objections***

Claims 12-14 are objected to because of the following informalities: In Claim 12, the formula representing the cyclotetrasaccharide is incorrect since the formula that is recited is not a cyclotetrasaccharide. This appears to be a typographical error. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oku et al. (EP 1321148 A1).

In claim 12, applicant claims a method for inhibiting a radical reaction, comprising incorporating a composition as an effective ingredient a cyclotetrasaccharide represented by  $\text{cyclo}\{>6\}\text{-}\alpha\text{-D-glucopyranosyl-(1}\rightarrow\text{3)-}\alpha\text{-D-glucopyranosyl-(1}\rightarrow\text{)}\}$  or a mixture of said cyclotetrasaccharide and its saccharide derivative(s) into a composition comprising an unsaturated compound in order to prevent an ingredient in said composition other than said unsaturated compound from being denatured by a peroxide of an unsaturated compound, formed by radical reaction. Claims 13 and 14 are drawn to said method involving specific unsaturated compounds including lipids, proteins, enzymes and vitamins such as vitamin A and D.

Oku et al. disclose a method for inhibiting the reduction of active oxygen eliminating activity (which involves a radical reaction), which comprises a step of incorporating the inhibitory agent cyclotetrasaccharide comprising  $\text{cyclo}\{\rightarrow 6\}\text{-}\alpha\text{-D-glucopyranosyl-(1}\rightarrow\text{3)-}\alpha\text{-D-glucopyranosyl-(1}\rightarrow\text{6)-}\alpha\text{-D-glucopyranosyl-(1}\rightarrow\text{3)-}\alpha\text{-D-glucopyranosyl-(1}\rightarrow\text{)}\}$  into a plant substance with active oxygen eliminating activity in an aqueous system (see abstract and claims 5-10; also see sections [0004] to [0006]). Furthermore, Oku et al. disclose that plants antioxidants can also be incorporated into said composition (see abstract and claims 5-10; also see sections [0004] to [0006]). In addition Oku et al. disclose that the antioxidant can be enzymes, pigments, polyphenols, and vitamins (see section [0011] and claim 8). Also, Oku et al. disclose that said composition can be as a food product, cosmetic, pharmaceutical (see examples, claims and entire reference).

The difference between applicant's claimed method and the method disclosed by Oku et al. is that Oku et al. does not explicitly disclose preventing denaturation of an ingredient in said composition. However, as acknowledged by applicant, it is well known that products mainly composed of organic compounds such as lipids, dyes, and synthetic high molecules will be deteriorated in quality and function during their storage as a result of undesired odor occurrence, color changing, color deterioration, hardening, decomposition, quality changing, etc., and it is also well known that peroxides which are formed in food products and pharmaceuticals, through radical reaction, will deteriorate useful ingredients contained therein such as proteins, peptides and/or amino acids, and also augment the reduction of their quality and function (see last paragraph of page 1 to 1<sup>st</sup> paragraph of page 2 of applicant's specification). It should be noted that pigments can be unsaturated compounds and that some vitamins such as vitamin E are unsaturated compounds.

It would have been obvious to one having ordinary skill in the art, at the time the claimed invention was made in view of Oku et al. to inhibit a radical reaction, comprising incorporating a composition of said cyclotetrasaccharide into a composition (such as a food or pharmaceutical) comprising an unsaturated organic compound(s) such as lipid or dye in order to prevent an ingredient(s) such as a protein or peptide from being denatured in said composition by peroxides which are formed through said radical reaction.

One having ordinary skill in the art would have been motivated, in view of Oku et al. to inhibit a radical reaction, comprising incorporating a composition of said cyclotetrasaccharide into a composition (such as a food or pharmaceutical) comprising an unsaturated organic compound(s) such as lipid or dye in order to prevent an ingredient(s) such as a protein or peptide

Art Unit: 1623

from being denatured in said composition by peroxides which are formed through said radical reaction. It should be noted that applicant's claim to foreign priority over Japan 2002-256069 (08/30/2002) has not been perfected, since an English translation of the said foreign priority document is not filed.

### ***Allowable Subject Matter***

The examiner has found claims 17-22 to be unobvious over the prior art of record and therefore to be allowable over the prior art of record. The present invention relates a radical reaction inhibitory agent, comprising as an effective ingredient a cyclotetrasaccharide represented by  $\text{cyclo}\{\rightarrow 6\text{-}\alpha\text{-D-glucopyranosyl-(1}\rightarrow 3\text{)-}\alpha\text{-D-glucopyranosyl-(1}\rightarrow 6\text{)-}\alpha\text{-D-glucopyranosyl-(1}\rightarrow 3\text{)-}\alpha\text{-D-glucopyranosyl-(1}\rightarrow\}$  or a mixture of said cyclotetrasaccharide and its saccharide derivative(s) and to method of using said agent. Though the compound of the present invention are similar to the compounds of the prior art, the method of claims 17-22 is not suggested in the prior art, nor is obvious over the prior art. In particular, the prior art does not disclose treating the said disease or disorders, comprising administering said cyclotetrasaccharide composition to a person as recites in said claims.

### ***Response to Arguments***

Applicant's arguments with respect to claims 12-14 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Henry whose telephone number is 571-272-0652. The examiner can normally be reached on 8.30am-5pm; Mon-Fri. If attempts to reach the

Art Unit: 1623

examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia A. Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael C. Henry

March 17, 2008.

/Shaojia Anna Jiang, Ph.D./

Supervisory Patent Examiner, Art Unit 1623